

Autostereoscopic Display

Abstract of the Disclosure

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An autostereoscopic display apparatus broadly comprises of backlighting means for projecting light, a spatial light modulator for modulating light emanated by the backlighting means, lens array comprising of plurality of lenses and an optional aperture screen for blocking unwanted light. The aperture screen is used to select only those rays from the backlighting means that have a predetermined direction. For instance rays orthogonal to the plane of the spatial light modulator. If the backlighting means are such that the emitted light has a predetermined direction then the aperture screen may be avoided. The spatial light modulator modulates light assuming that it only comprises of rays that have a predetermined direction. Each lens of the lens array translates spatially modulated light into directionally modulated light so that the directional distribution of light at each point of the array approximates the light emanating from the three-dimensional scenery to be reproduced. Preferably each lens is a converging lens so that it collects the light near its focal point. Individual apertures of the aperture screen coincide with focal spots of the lens array and select only the light that focused at those focal spots. Each aperture emits directionally modulated light where light intensity at every direction can be controlled by the spatial light modulator. Plurality of apertures comprises the three-dimensional picture visible on the autostereoscopic display.
